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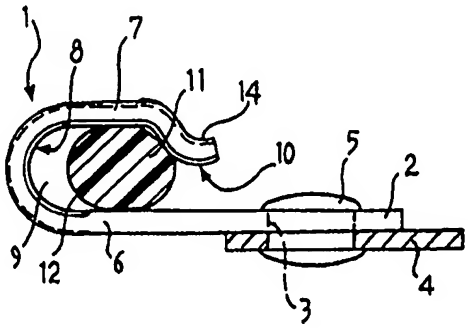

(57) Abstract

A lacing hook for laced fastenings is described and comprises a first cheek (6) and a second cheek (7) disposed opposite one another and defining between them a channel (8) with a base surface (9) defining a lacing surface for the hook, the base of the channel (8) being formed integrally with the lacing hook and the base surface (9) of the channel having a substantially toroidal shape.

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A lacing hook for laced fastenings

Technical Field

The present invention relates to a lacing hook for laced fastenings according to the preamble to the main claim.

Background Art

In the technical field of footwear with laced fastenings, lacing hooks are used widely for guiding the laces suitably on the upper of the footwear. One of the problems encountered with known lacing hooks lies in the resistance due to friction which these hooks offer to the sliding of the lace, which may make it difficult to fasten the footwear with the desired tension.

In order partially to prevent this problem, it is known to provide suitably-shaped inserts in the base of the channel of the hook to improve the sliding of the lace. In these solutions, however, the tensions produced in the laces, as well as the frictional forces present, tend to stress the aforementioned inserts until they are pulled off the corresponding hooks, compromising the fastening of the footwear. Moreover, these solutions require pre-assembly of the hook with the corresponding insert.

Disclosure of the invention

The problem upon which the present invention is based is that of providing a lacing hook which is designed structurally and functionally to prevent all of the problems complained of with reference to the prior art mentioned.

This problem is solved by the invention by a lacing hook formed in accordance with the following claims.

An advantage achieved by the hook of the present invention

is that it permits effective and rapid sliding of the lace with low sliding friction during both fastening and unfastening, at the same time forming a particularly strong hook which is free of sharp surfaces, and which can hold the lace in position once it is housed in the channel of the hook.

Another advantage is that of providing a lacing hook with a monolithic structure such that it requires no pre-assembly operations.

Brief descriptions of the drawings

Further advantages and characteristics of the invention will become clearer from the following detailed description of some preferred embodiments thereof described by way of non-limiting example with reference to the appended drawings, in which:

Figures 1 and 2 are a plan view and a side elevational view, respectively, of a first embodiment of the lacing hook according to the invention,

Figure 3 is a view corresponding to Figure 2 of a second embodiment of the lacing hook according to the invention,

Figures 4 and 5 are views corresponding to Figures 1 and 2, respectively, of a third embodiment of the lacing hook according to the invention,

Figure 6 is a view corresponding to Figure 5 of a fourth embodiment of the lacing hook according to the invention,

Figures 7 and 8 are a plan view and a side elevational view, respectively, of a fifth embodiment of a lacing hook according to the present invention,

Figure 9 and 10 are views corresponding to Figures 7 and 8, respectively, of a sixth embodiment of the lacing hook

according to the invention.

Best mode of carrying out the invention

With reference to Figures 1 and 2, a first embodiment of a lacing hook formed in accordance with the present invention is generally indicated 1. The hook 1 comprises an attachment plate 2 having through-holes 3 for the fixing of the hook 1 to a respective portion 4 of a footwear upper, shown only partially (Figure 2), by means of rivets 5 or similar fixing means. The plate 2 is extended to form a first cheek 6 and a second cheek 7 together defining a channel 8 which has a closed base 9 and is open on the opposite side with a mouth 10.

The surface of the base 9 defines a lacing surface over which a lace 11 can be guided for sliding and which has a substantially toroidal shape. The toroidal surface of the base 9 is defined by the rotation of a first arc of a circle, indicated 12 in Figure 2, about an axis on which a second arc of a circle, indicated 13 in Figure 1, is centred. It should be noted that both arcs 12 and 13 extend through respective angles of between approximately 15° and 180° and preferably in the region of the higher value indicated above. The lace 11 is thus guided on the curved base of the channel 9 without breaks in continuity, particularly in the regions in which the lace enters and leaves the hook (Figure 1), thus offering the best possible sliding and preventing damage to the lace due to repeated changes in its curvature. It is envisaged that the curvature of the arc 14 may be variable along its length.

It should also be noted that the base 9 with the toroidal surface, is formed integrally with the hook 1 during the formation thereof, for example, by the stamping technique. The

hook 1 thus produced therefore has a monolithic structure which can make it particularly strong.

A narrow portion formed at the mouth 10 of the channel 8 is defined by a lip 14 at the end of the cheek 7, facing the opposite cheek 6 and projecting towards the latter in order to restrict the mouth.

The narrow portion of the mouth 10 constitutes restraining means for holding the lace 11 close to the lacing surface of the base 9 once the lace is engaged in the channel 8.

In the regions in which the lace enters and leaves the channel 8 of the hook, the peripheral edge 15 of the hook is turned over towards the outside of the channel and is bent onto the corresponding cheek so as to allow for ample sliding of the lace engaged in the hook, at the same time eliminating any regions in which there is friction and consequently wear of the lace against the lacing surfaces of the hook.

With reference to Figure 3, a second embodiment of the lacing hook formed in accordance with the present invention is indicated 20. Details similar to those of the previous embodiment are indicated by the same reference numerals. The hook 20 differs from the hook 1 in that a narrow portion at the mouth 10 is produced by the bending of an end lip 21 of the cheek 7 towards the inside of the channel to form an eye.

Figures 4 and 5 show a third embodiment of the lacing hook according to the invention, generally indicated 30. Unlike the hooks of the previous embodiments, the hook 30 has a rivet-shaped appendage 31 formed integrally with the hook and projecting from the cheek 6 in order to engage a corresponding hole formed in the footwear upper in order to fix the hook to

the footwear.

In Figure 6, a variant of the hook of Figures 4 and 5 is indicated 40 and differs in that, as in the hook 20, it has a narrow portion at the mouth 10 formed by bending of the end lip of the cheek 7 towards the inside of the channel 8 to form an eye.

With reference to Figures 7 and 8, a fifth embodiment of the lacing hook according to the present invention is indicated 50. The hook 50 comprises a first portion and a second portion articulated to one another. The first portion comprises an attachment plate 52 having a single hole 53 for the fixing of the hook to the footwear upper by means of a rivet or the like. The second portion comprises a pair of opposed cheeks 56, 57 together defining a duct 58 having, on one side, a base 59 the toroidal-shaped surface of which constitutes a lacing surface for the sliding of a lace, not shown in the drawings. The duct 58 is closed on the opposite side by an extension of the cheek 57 which extends as far as the opposite cheek 56. Once the lace has been disposed in the duct 58 for lacing, it thus remains in position engaged in the hook until it is deliberately unthreaded from the duct. It should be noted that, since the second portion of the hook 50 is pivotable in a plane substantially perpendicular to the footwear upper (Figure 7), self-alignment of the second portion which is subject to the lacing tensions is facilitated and the sliding of the lace in the lacing hook during tensioning and/or release of the lace during fastening and unfastening of the footwear is thus improved.

Figures 9 and 10 show a sixth embodiment of the lacing

hook according to the invention, generally indicated 60. The hook 60 differs from the hook of the previous embodiment substantially in that it has a monolithic structure in which the two hook portions are formed as a single piece. A plurality of projections, indicated 61, serve to improve the anchorage of the hook to the portion of the upper on which it is fitted.

The invention thus solves the problem set, achieving the advantages indicated above in comparison with known solutions.

CLAIMS

1. A lacing hook for laced fastenings, comprising a first cheek (6, 56) and a second cheek (7, 57), disposed opposite one another and defining between them a channel (8, 58) with a base surface (9, 59) of the channel defining a lacing surface for the hook, characterized in that the base of the channel (8, 58) is formed integrally with the lacing hook and the base surface (9, 59) of the channel (8, 58) has a substantially toroidal shape.

2. A lacing hook according to Claim 1, in which the toroidal surface is defined by the rotation of a first arc (12) of a circle about an axis on which a second arc (13) of a circle is centred, the first and second arcs (12, 13) extending through respective angles of between 15° and 180° and preferably in the region of the higher value indicated.

3. A lacing hook according to Claim 1 or Claim 2, in which the channel (8) is open at the side opposite the base surface (9).

4. A lacing hook according to any one of the preceding claims, comprising restraining means for holding the lace in the channel.

5. A lacing hook according to Claim 4, in which the restraining means comprise a narrow portion (14, 21) of the channel (8) in the region of its mouth (10).

6. A lacing hook according to Claim 5, in which the narrow portion is defined by a lip (14, 21) formed as an extension of the second cheek (7).

7. A lacing hook according to Claim 6, in which the lip (21) is bent towards the inside of the channel (8) to form an eye.

8. A lacing hook according to one or more of the preceding

claims, in which the peripheral edges (15) of the hook are turned over, at least in the region of the channel (8), towards the outside thereof, and preferably throughout the extent of the second cheek (7) in the region of the channel (8).

9. A lacing hook according to one or more of the preceding claims, in which the channel (8) is closed on the side opposite the lacing surface.

10. A lacing hook according to one or more of the preceding claims, comprising a first portion and a second portion, the first portion having means (52, 53) for attaching the hook to the footwear, the lacing surface being formed on the second portion, and the second portion being mounted for pivoting on the first portion.

11. A hook according to one or more of the preceding claims, comprising a rivet-like appendage (31) formed integrally with the hook and extending from the first cheek (6), away from the channel (8).

FIG. 1

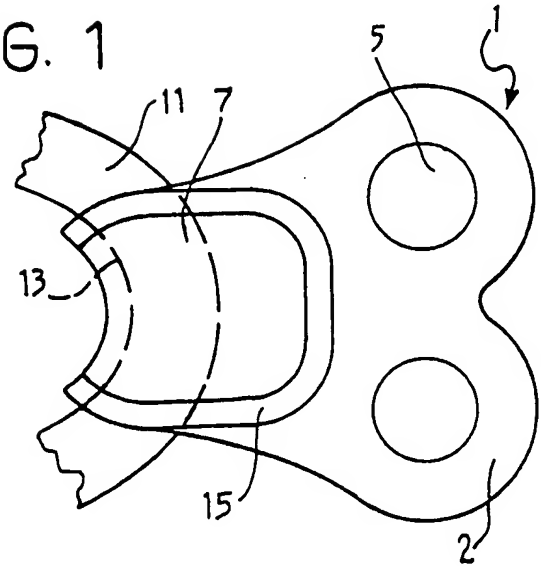


FIG. 2

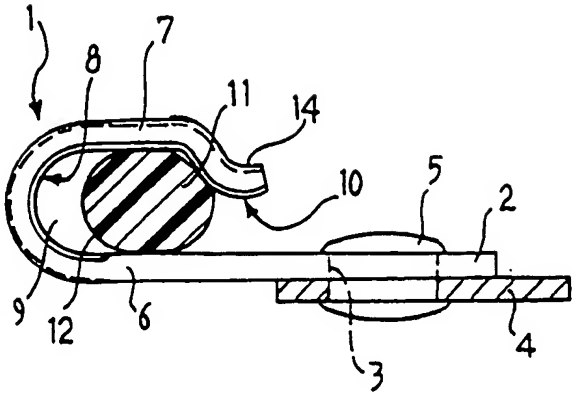


FIG. 3

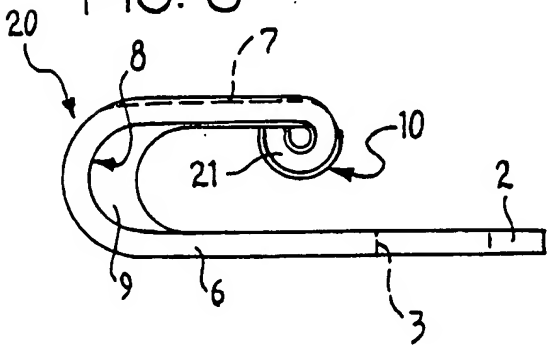


FIG. 4

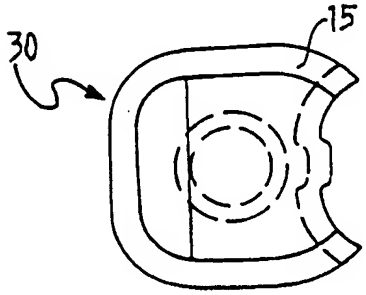


FIG. 5

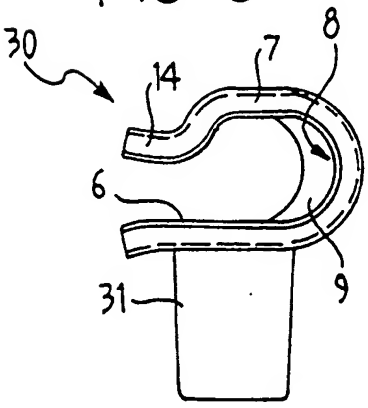


FIG. 6

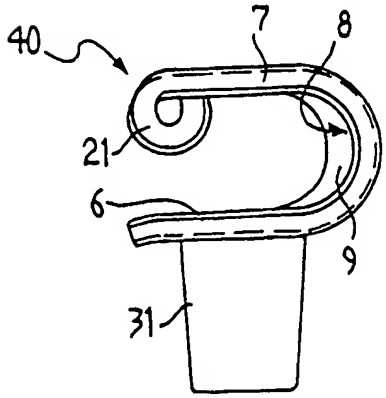


FIG. 7

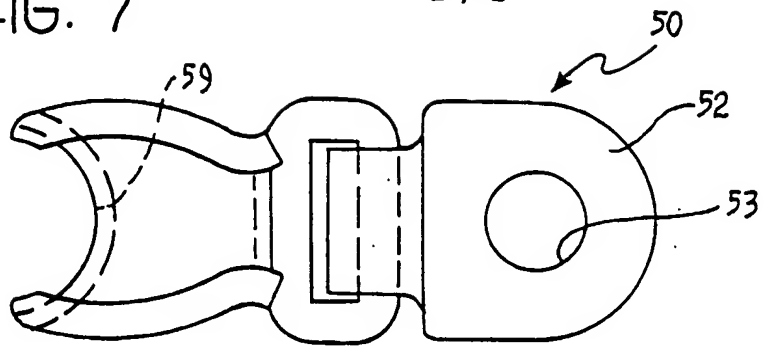


FIG. 8

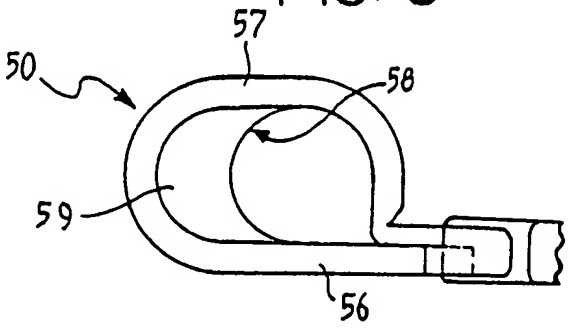


FIG. 9

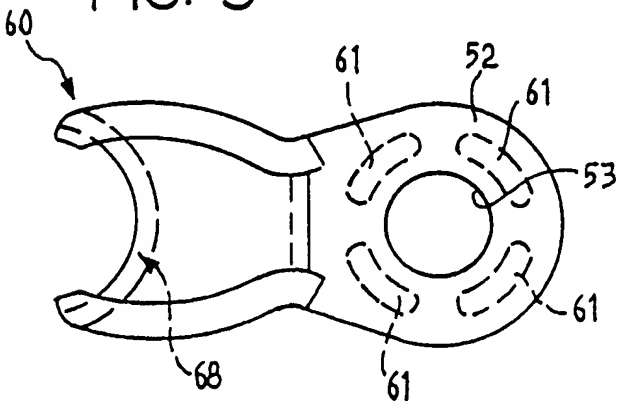
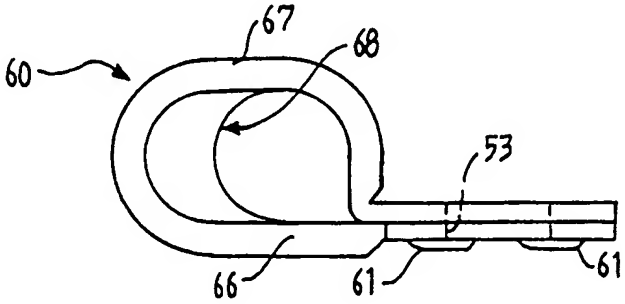


FIG. 10



INTERNATIONAL SEARCH REPORT

Inte onal Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A43C3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A43C

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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